

Amendments to the Specification:

Please replace paragraphs [0015], [0016] and [0017] with the following amended paragraphs.

[0015] The invention provides an extrusion molding apparatus for a resin tube, comprising a plurality of extruders for thermally melting and extruding resins of different kinds, an inner layer tube molding passage for forwardly passing therethrough the resin extruded from one extruder of these extruders to enable the molding of an inner layer tube, an outer tube molding passage for forwardly passing therethrough the resin extruded from the other extruder to enable the molding of an outer layer tube which is to be externally fitted integrally on said inner layer tube, a die enabling the molding of a multi-layer tube by these inner and outer layer tubes, said die being formed with inflow passages enabling the resins extruded from said extruders to flow into the rears of the said tube molding passages, and flow adjusting valves enabling the adjustment of the respective flows per unit time of the resins flowing through said inflow passages, wherein

[0016] each of said flow adjusting valves makes openable/closable the communication passage for communicating the intermediate portion of said inflow passage to outside said die, and

[0017] each said flow adjusting valve is provided with an opening-degree adjusting valve enabling the adjustment of the degree of opening of said communication passage.

Please delete paragraphs [0018] and [0019].

Please replace paragraphs [0020] and [0021] with the following amended paragraphs.

[0020] Further, in said invention, inner and outer extrusion ports constituting the respective front ends of said inner and outer layer tube molding passages may be disposed radially close to each other and be opened at the front end surface of the die separately from each other.

[0021] Further, said invention provides an extrusion molding apparatus for a resin tube, with said die formed with a through-hole longitudinally extending through said die and passing inwardly of said inner layer tube molding passage, said tube being externally fitted on a core material forwardly passing through said through-hole, wherein said inner extrusion port of said inner layer tube molding passage may be disposed radially close to the front end opening constituting the front end of said through-hole.

Please delete paragraphs [0023], [0024], [0025], [0026], [0034] and [0035].

Please replace paragraphs [0036] and [0037] with the following amended paragraphs.

[0036] The invention provides a plurality of extruders for thermally melting and extruding resins of different kinds, an inner layer tube molding passage for forwardly passing therethrough the resin extruded from one of these extruders to enable the molding of an

inner layer tube, and an outer layer tube molding passage for forwardly passing therethrough the resin extruded from the other extruder to enable the molding of an outer layer tube which is to be externally fitted integrally on said inner layer tube, a die enabling the molding of a multi-layer tube by these inner and outer layer tubes, said die being formed with inflow passages enabling the resins extruded from said extruders to flow into the rears of said tube molding passages, and flow adjusting valves respectively enabling the adjustment of each flow per unit time of each resin flowing through the inflow passage.

[0037] For this reason, in the case of molding a multi-layer tube by the driving of each said extruder to cause each resin extruded from each extruder to pass through each said tube molding passage, the flow of said resin can be adjusted by the actuation of each said flow adjusting valve. Consequently, the wall thickness and diameter of said inner and outer layer tubes can be adjusted to respective desired values, providing a desired multi-layer tube.

Please replace paragraph [0039] with the following amended paragraphs.

[0039] And, suppose that each said flow adjusting valve is actuated so as to change the flow of the resin passing from each said flow adjusting valve to each said tube molding passage. In this case, as described above, the volume of the resin in each "passage" is small and volumetric variations due to external force are suppressed such that they are

small. For this reason, the change of the flow of the resin passing through each said tube molding passage follows the actuation of each said flow adjusting valve with satisfactory responsiveness. Consequently, the dimensional accuracies of the inner and outer layer tubes of the multi-layer tube being molded by the extrusion molding apparatus can be respectively made further high.

Further, each said flow adjusting valve makes openable/closable the communication passage communicating the intermediate portion of each said inflow passage to outside the die.

For this reason, when said resin is passed from said extruder through the flow adjusting valve and inflow passage to said tube molding passage, a partial flow of the full flow extruded from said extruder is discharged in a predetermined amount to outside the die through said communication passage by said flow adjusting valve. Thereupon, thereby, the adjustment of the flows of the resins passed to said tube molding passages is made possible.

That is, even in the case where the adjustment of the flow of the resin passed to said tube molding passage is made possible, the full flow extruded from said extruder can be made substantially constant. For this reason, in the case where said tube is to be molded to desired dimensions, trying to change the flow extruded from the extruder would tend to make the control troublesome; however, such control is unnecessary. Consequently, the molding of said accurate tube is facilitated.

Further, each said flow adjusting valve is provided with an opening-degree adjusting valve making adjustable the degree of opening of each said communication passage. For this reason, partial flow of the resin passing through said communication passage to be discharged to outside the die can be made to have a desired value by the adjustment of the degree of opening of the communication passage by said opening-degree adjusting valve. And, since such adjusting operation can be facilitated, the molding of a tube of desired dimensions is further facilitated.

Please replace paragraph [0040] with the following amended paragraph.

[0040] Further, in said invention, inner and outer extrusion ports constituting the respective front ends of said inner and outer layer tube molding passages may be disposed radially close to each other and be opened at the front end surface of the die separately from each other.

Please replace paragraph [0045] with the following amended paragraph.

[0045] Further, added to said invention, there is provided an extrusion molding apparatus for a resin tube with said die formed with a through-hole longitudinally extending through said die and passing inwardly of said inner layer tube molding passage, said tube being externally fitted on a core material forwardly passing through said through-hole, wherein

said inner extrusion port of said inner layer tube molding passage may be disposed close to the front end opening radially constituting the front end of said through-hole.

Please replace paragraphs [0051] and [0052] with the following amended paragraphs.

[0051] A best mode for carrying out the invention to realize an object which, relating to an extrusion molding apparatus for a resin tube according to the invention, is to make the dimensions of a tube molded by the extrusion molding apparatus more accurate, is as follows.

[0052] That is, the extrusion molding apparatus for a resin tube comprises a plurality of extruders for thermally melting and extruding resins of different kinds, an inner layer tube molding passage for forwardly passing therethrough the resin extruded from one extruder of these extruders to enable the molding of an inner layer tube, and an outer layer tube molding passage for forwardly passing therethrough the resin extruded from the other extruder to enable the molding of an outer layer tube which is to be externally fitted integrally on said inner layer tube, and a die enabling the molding of a multi-layer tube by these inner and outer layer tubes, said die being formed with inflow passages enabling the resins extruded from said extruders to flow into the respective rears of said tube molding passages, flow adjusting valves making adjustable the respective flows per unit time of the resins flowing through said inflow passages, wherein

each said flow adjusting valve makes openable/closable the communication passage communicating the intermediate portion of each said inflow passage to outside the die, and

each said flow adjusting valve is provided with an opening-degree adjusting valve making adjustable each said communication passage.

Please replace paragraph [0054] with the following amended paragraph.

[0054] In Figs. 1 – 3, the character 1 denotes an extrusion molding apparatus. This extrusion molding apparatus 1 is used for extrusion-molding a multi-layer tube 2 of circular section made of resin. This tube 2 comprises an inner layer tube 2a constituting the inner layer thereof, and an outer layer tube 2b constituting the outer layer of said tube 2 and externally fitted on said inner layer tube 2a to be integrally bonded to the outer peripheral surface of this inner layer tube 2a. Said tube 2 is used, e.g., as a material for catheters and its outer diameter is 1.0 – 1.5 mm. Further, the arrow Fr in the figure indicates the forward direction of extrusion of the tube 2 by said extrusion molding apparatus 1.

Please replace paragraph [0056] with the following amended paragraph.

[0056] Said first and second resins 3 and 4 differ from each other in hardness at ordinary temperature. Further, the thermally melting of said first and second resins 3 and 4 is achieved by heater using a heater. Further, said first and second extruders 6 and 7

thereby being reduced in radial dimension. Then, this core material 25 is extracted from said tube 2 so as to separate said core material 25 from the inner peripheral surface of the inner layer tube 2a of said tube 2, whereupon said catheter is molded.

Please replace paragraph [0077] with the following amended paragraph.

[0077] Here, the first resin 3 of which the inner layer tube 2a of said tube 2 is molded differ in hardness from the second resin 4 of which the outer layer tube 2b is molded. For this reason, as shown in Figs. 4 and 5, the inner and outer layer tubes 2a and 2b in the tube 2 have their respective wall thicknesses and radial dimensions radially adjusted. Thereupon, the hardness and shape at any portion longitudinally of said tube 2 can be continuously gradually changed, a fact which is convenient for molding catheters.

Please replace paragraph [0080] with the following amended paragraph.

[0080] Here, the volumes of the spaces in the "passages," which are portions of said inflow passages 21 and 22 for the flowing of the resins 3 and 4 extending from said flow adjusting valves 34 and 35 to the tube molding passages 9 and 10 is smaller than those extending from the extruders 6 and 7 to the tube molding passages 9 and 10. For this reason, the volumes of the resins 3 and 4 filling said "passages" are also small. Consequently, by an amount corresponding thereto, the volumetric variations of said resins 3 and 4 due to external force are suppressed such that they are small.

Please replace paragraph [0089] with the following amended paragraph.

[0089] Further, as described above, the flow adjusting valves 34 and 35 are provided with opening-degree adjusting valves 44 which enable the adjustment of the degrees of opening of said communication passages 43.

Please replace paragraph [0091] with the following amended paragraph.

[0091] Further, as described above, there are installed flow adjusting valves 34 and 35 which enable the adjustment of the respective flows per unit time of the resins 3 and 4 extruded from the extruders 6 and 7 to flow through said inflow passages 21 and 22 and passed to said inner and outer layer tube molding passages 9 and 10.

Please replace paragraph [0093] with the following amended paragraph.

[0093] Here, the volumes of the spaces in the "passages," which are portions of said inflow passages 21 and 22 for the flowing of the resins 3 and 4 extending from said flow adjusting valves 34 and 35 to the tube molding passages 9 and 10 are smaller than those extending from the extruders 6 and 7 to the tube molding passages 9 and 10. For this reason, the volumes of the resins 3 and 4 filled in said "passages" become also small. Consequently, by the amount corresponding thereto the volumetric variations of said resins 3 and 4 due to external force are suppressed such that they are small.

Please replace paragraph [0095] with the following amended paragraph.

[0095] Further, as described above, the inner and outer extrusion ports 17 and 18 constituting the respective front ends of the inner and outer tube molding passages 9 and 10 are disposed close to each other radially of said axis 16, and are opened at the front end surface 19 of the die 11 separately from each other.

Please replace paragraph [0097] with the following amended paragraph.

[0097] In the above case, the inner and outer extrusion ports 17 and 18 are disposed radially close to each other. For this reason, when said resins 3 and 4 are passed through the tube molding passages 9 and 10 of said die 11 and extruded forwardly from the inner and outer extrusion ports 17 and 18, said inner and outer layer tubes 2a and 2b immediately after they are forwardly extruded from said inner and outer extrusion ports 17 and 18 fit together without requiring relatively large radial deformation, and smoothly integrated.

Please replace paragraph [0098] with the following amended paragraph.

[0098] Furthermore, as described above, the inner and outer extrusion ports 17 and 18 are partly or wholly opened at the front end surface 19 of said die 11 separately from each other. For this reason, when said inner and outer layer tubes 2a and 2b fit together, these inner and outer layer tubes 2a and 2b are suppressed from pressing each other.